

HDPD224 – PDE 2

SUSTAINABLE DESIGN RESEARCH

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by **ZAPP** design co

Context research



ISM Objects (Lighting) - Moorabbin
12:30pm Wednesday 17th Aug 2012

Vibe:

quite sterile, un inspiring, cold (literally) as the office sits inside a warehouse (see 5&6). The front reception is warm and inviting. A large painting dominates the room and its colour pallet matches the warm lighting given off from the products on display (see 1&2).

Sounds:

mostly silent, photocopier, fax machine and phone calls chime in intermittently. fridays incorporate music. he heater is abnormally loud and works every half hour.

Layout and Equipment:

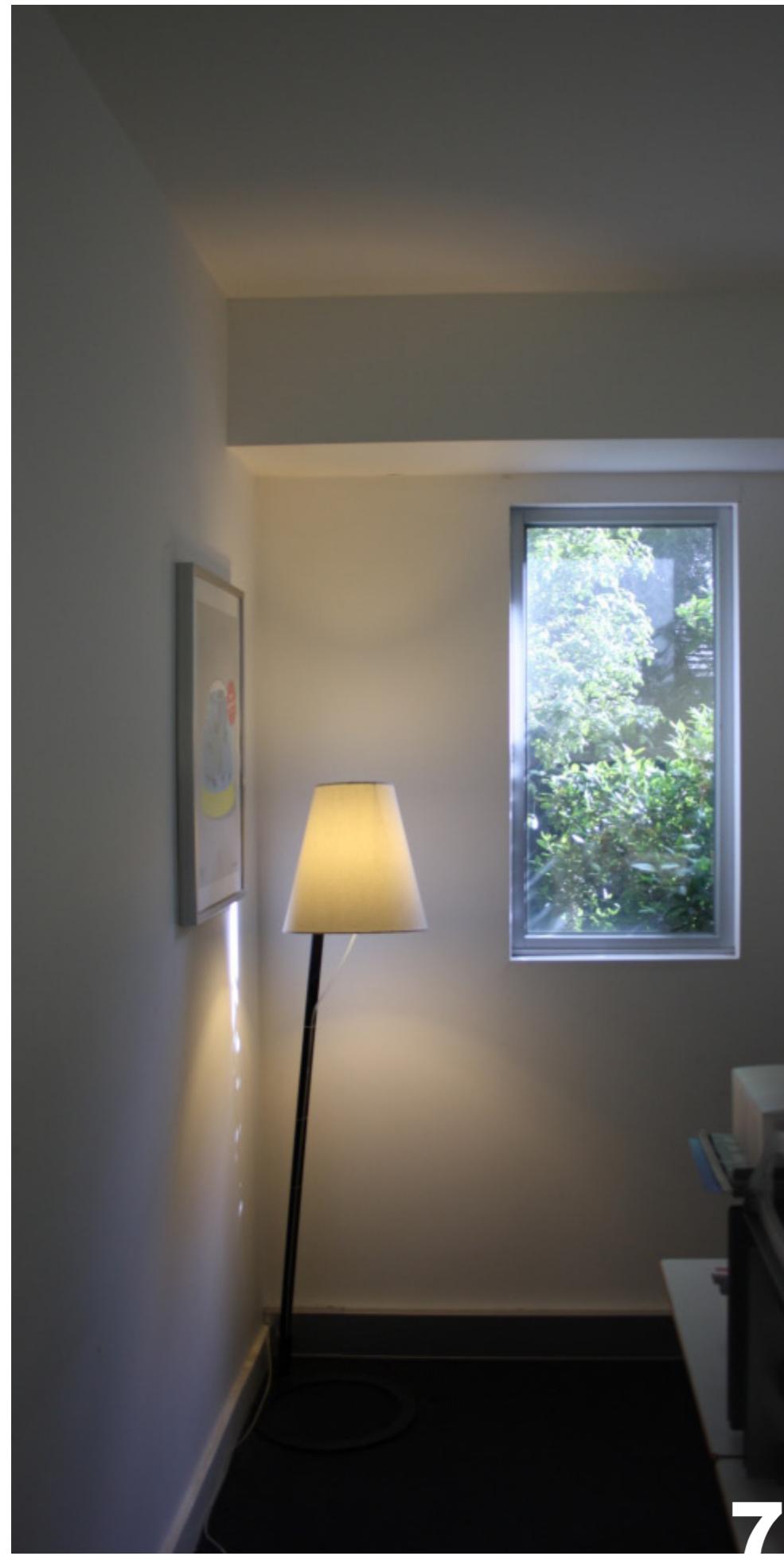
the office is open plan, with a central meeting desk, multi-function printer/fax/copier/scan station and stationary supplies cupboard (see 5&6). comfortable, highly adjustable chairs and height adjustable worksattions are in use. modular workstations allowing for many configurations (see 3&4).

at the rear of the office is a small library (still being completed) that houses product information, product catalogues and industry relvant books & magazines. (see 9&10)



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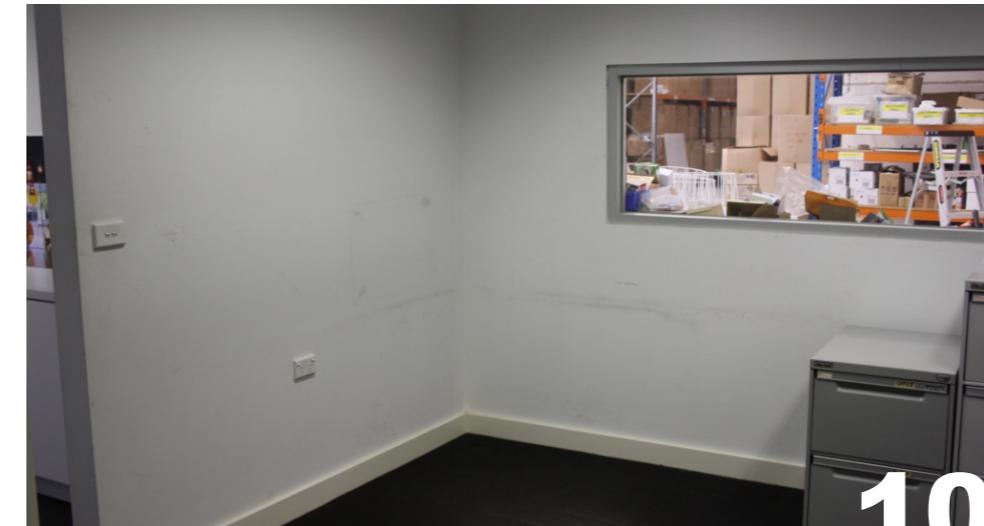
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8



9



10

ISM Objects (Lighting) - Moorabbin
12:30pm Wednesday 17th Aug 2012

Technology:

all computers are connected to a central server which houses all product, custom projects, inventory, finance and miscellaneous information. no info is stored on the local hdd computer. all workstations are also equipped with a multi function voip phone (see 3&4).

Lighting:

tube fluorescents provide the majority of the light source (see 8). a small degree of natural light is allowed through the windows lifting the mood of the main office. (see 6). the foliage growing over the front of the window breaks up the white grey and black which dominates the landscape (see 5,6&7) . Finally a arm lamp brings calm to each individual work station (see 7)



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Mobile Devices

Tablet usage is growing
–portable
–mobile
–data is stored mostly on a central ‘could’ server
–wireless



Online Collaboration

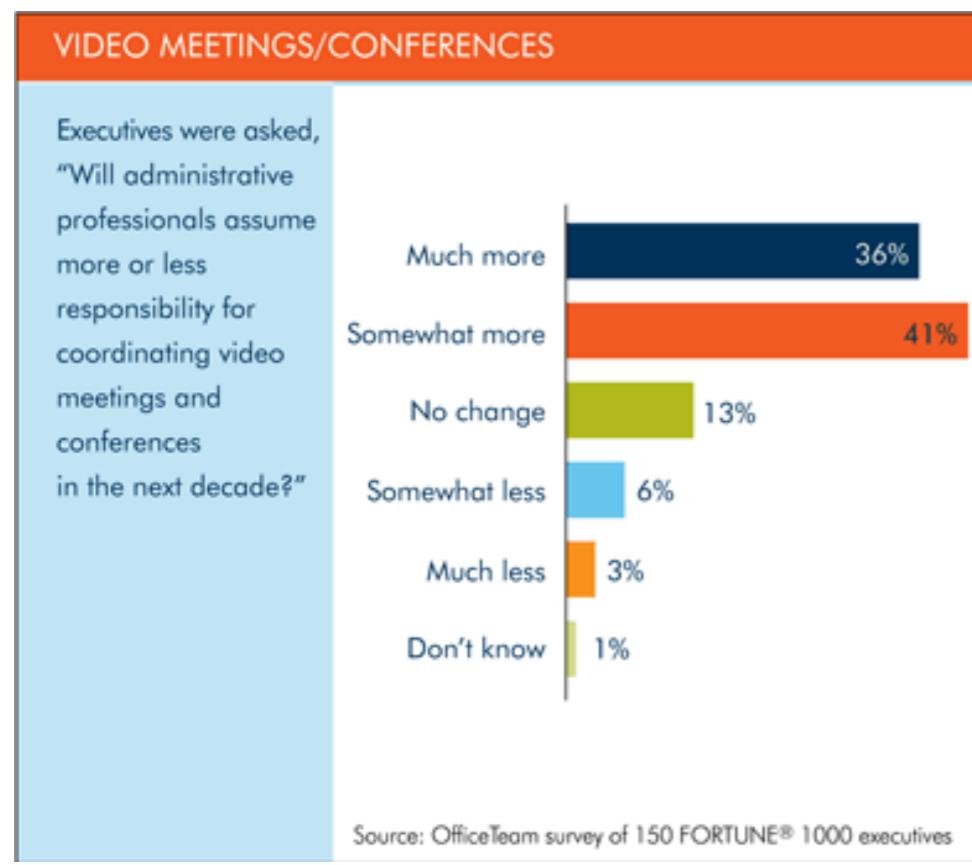
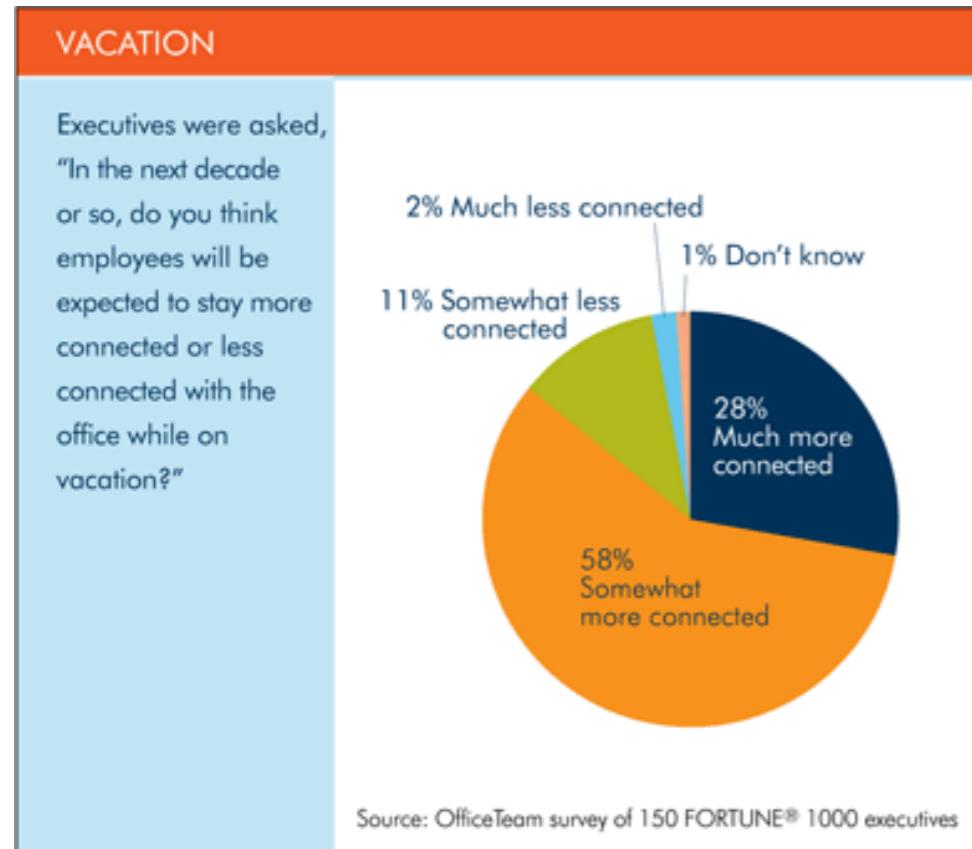
–communication through web based software
–software emulates facebook interface
–employees can chat live, send memos, share documents and access remote desktops
–software includes yammer, chatter, jive, dropbox and teamviewer.
–email usage on decline



The screenshot shows the Nimble AMS Chatter interface. The top navigation bar includes 'Search Accounts, Contacts...', 'Search', 'Nancy Nimble', 'Help & Training', and 'Nimble AMS'. The main menu below the bar includes Home, Chatter, Dashboards, Reports, Accounts, Affiliations, Committees, Deals, Memberships, Events, Registrations, Orders, and more. The left sidebar has a profile picture for 'Nancy Nimble' and links for Messages, My Chatter (which is highlighted in blue), My Info, Bookmarks, All Chatter, People, Groups, and Files. The main content area displays updates for 'My Chatter'. One update from 'Nancy Nimble' says 'The Salesforce Appexchange totally rocks!' with a timestamp of June 8, 2012 at 7:21 AM. Another update from 'Winthrop Marshall' says 'Nancy Nimble Winthrop Marshall (from Christian Church Homes of Northern California) registered for 2013 Annual Meeting for a total of \$0.00.' with a timestamp of June 7, 2012 at 4:44 PM. A third update from 'Events' says 'Nancy Nimble Winthrop Marshall (from Christian Church Homes of Northern California) registered for 2013 Annual Meeting for a total of \$0.00.' with a timestamp of June 7, 2012 at 4:44 PM. A fourth update from 'Committee' says 'Nancy Nimble Alisha Parkhill (from LeadingAge) just joined the LeadingAge Board of Directors with the position of Treasurer with a term of 1/1/2012 thru 12/31/2013.' with a timestamp of June 7, 2012 at 4:22 PM. A fifth update from 'CommitteeMembership' says '0000047' with a timestamp of June 7, 2012 at 4:22 PM. A sixth update from 'Winthrop Marshall' says 'Talking to Win about being on the board. Can anyone give me insight on Win's views.' with a timestamp of June 7, 2012 at 3:43 PM. On the right side, there are sections for 'Recommendations' (including 'Get Chatter Mobile' and profiles for 'I like this demo', 'Image002', and 'NimbleUser') and 'Trending Topics'.



Context research



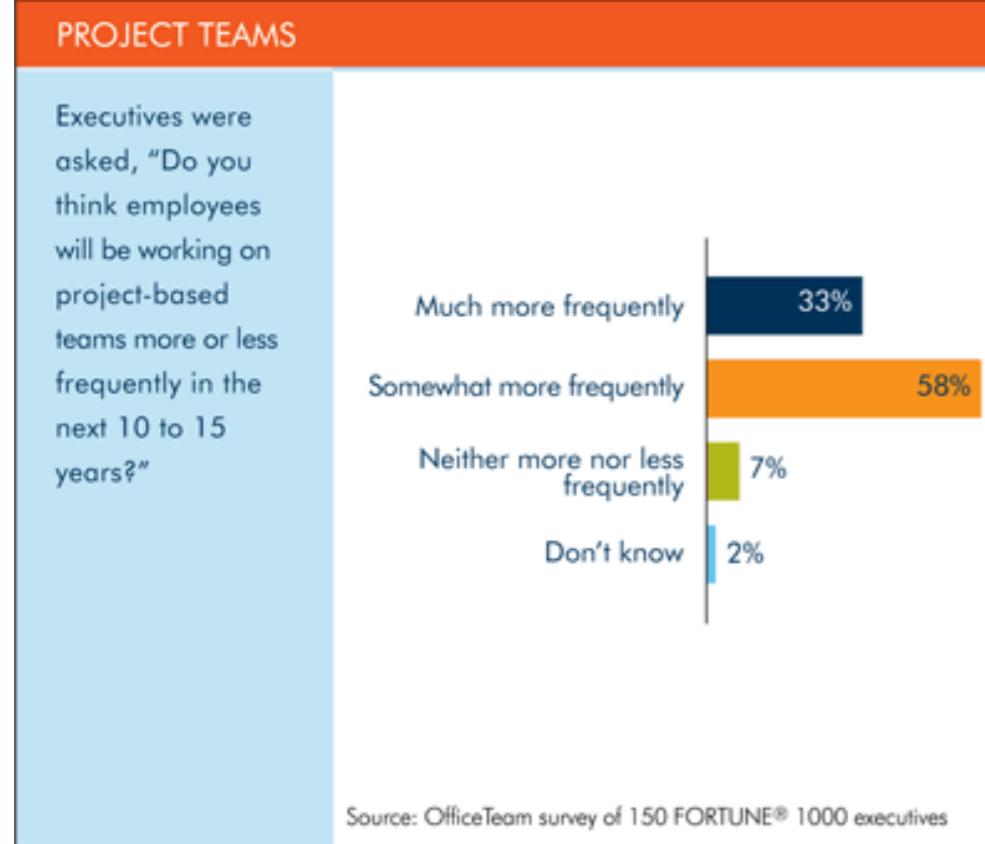
OPEN PLAN OFFICE

- communal spaces encourage face to face interaction between co-workers
- our work lives are merging with our social lives
- we are working longer hours
- we are expected to be with our phones 24/7 (1)
- generation Y reject the 9-5 notion
- Difficulty getting in and out of the city at peak times
- Gen Y embrace technology and new thinking
- Gen Y like the freedom of flexible work times and breaks
- Gen Y reject hierarchy in the office (all workers are in the same space)
- furniture is reconfigured regularly
- amount of space per employee is dropping (no more personal desks)
- companies keep %10 of their office real-estate on very short leases through companies like regus.
- video conferencing is gaining popularity, office space needs to accommodate virtual meetings (2)



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context research



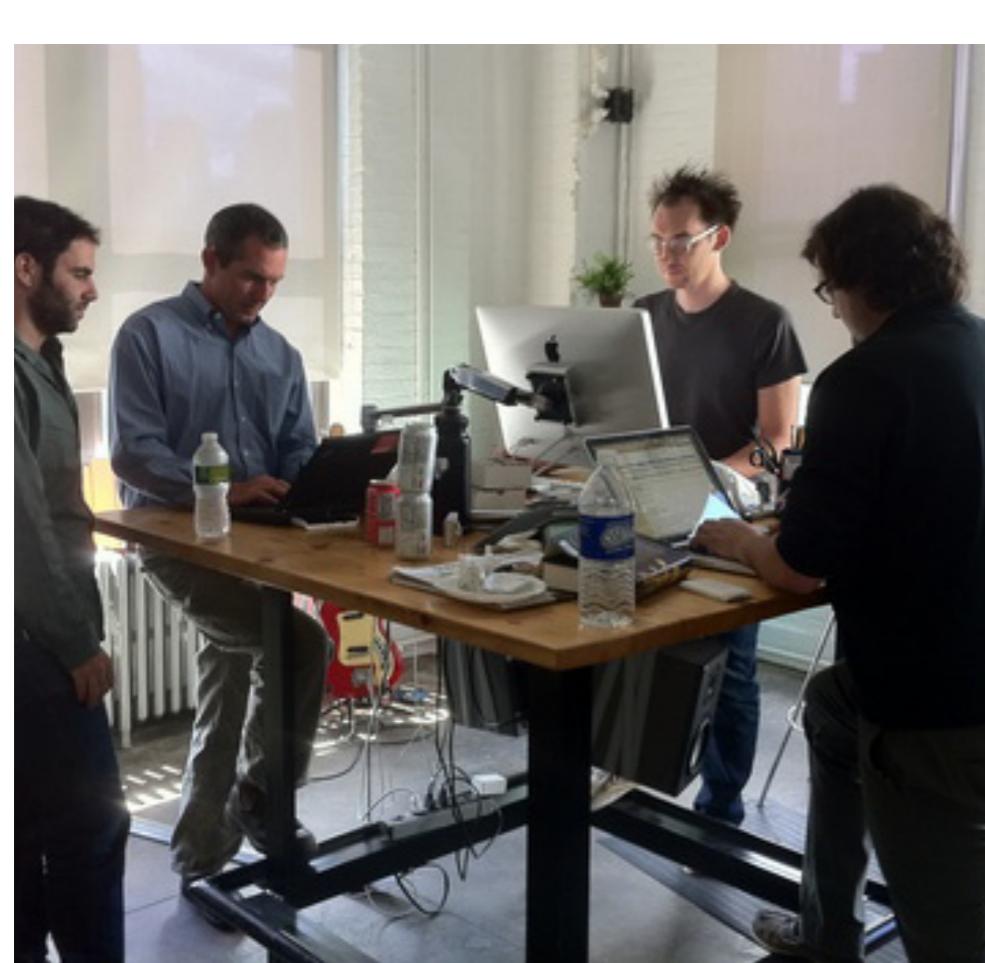
NEW WAYS OF WORKING COLLABORATION

- *Swarming* an advanced form of teamwork
- Swarming is a work style characterized by a flurry of collective activity by anyone and everyone conceivably available and able to add value. Swarms form quickly, attacking a problem or opportunity and then quickly dissipating.
- it is not pure swarming as the team will still have a leader to coordinate tasks
- new employment roles in the office, to coordinate teams
- resource, knowledge and workflow managers - designed to coordinate work teams, catalogue knowledge for ease of access and setup video conferencing.
- department cross over
- keeping employees in their own departments wont generate new ideas.
- communal work space encourages collaboration from different departments, sometimes even different companies on the same floor.
- enhances the networks of co-workers, with the aid of social and professional networking sites
- breeds creativity



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context research



‘85% of people who spend more than eight hours a day on a computer experience neck pain’
—Prof. K Griffiths,
Sydney University

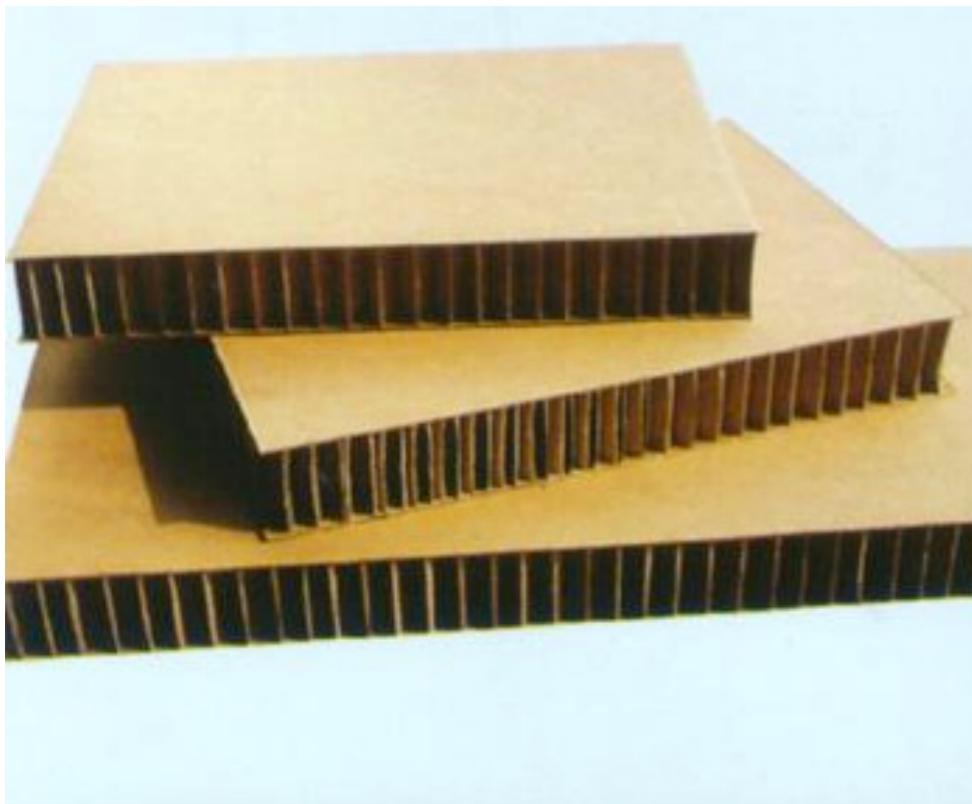


‘people who sat for eight to eleven hours per day, increased their chance of dying by 40%’
—Prof. D Dunstan,
Baker DI Heart and Diabetes Institute

RESEARCH SUGGESTS MOBILITY IS THE KEY

- Despite significant ergonomic advancements, health problems can still ensue.
- Exclusively sitting all day contributes to these health problems including:
 - diabetes, obesity and muscular skeletal problems
- mobility has its advantages
 - increased bloodflow
 - high alert and concentration levels
 - increased productivity
- research suggests
 - “kitchen table” meetings (standing)
 - taking phone calls standing up
 - no “same floor” emails
 - furniture that encourages multiple stances including standing

materials and processes



Z
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A4 Design honeycomb cardboard

Sturdy and rigid, the board can be cut to many shapes and sizes, can also be layered to achieve 3D shapes. With the space saving ability to flat pack. Can be secured using any number of ways including nuts and bolts, glues, and snap fits. Easily recycled and made from recycled paper of sustainable forests.

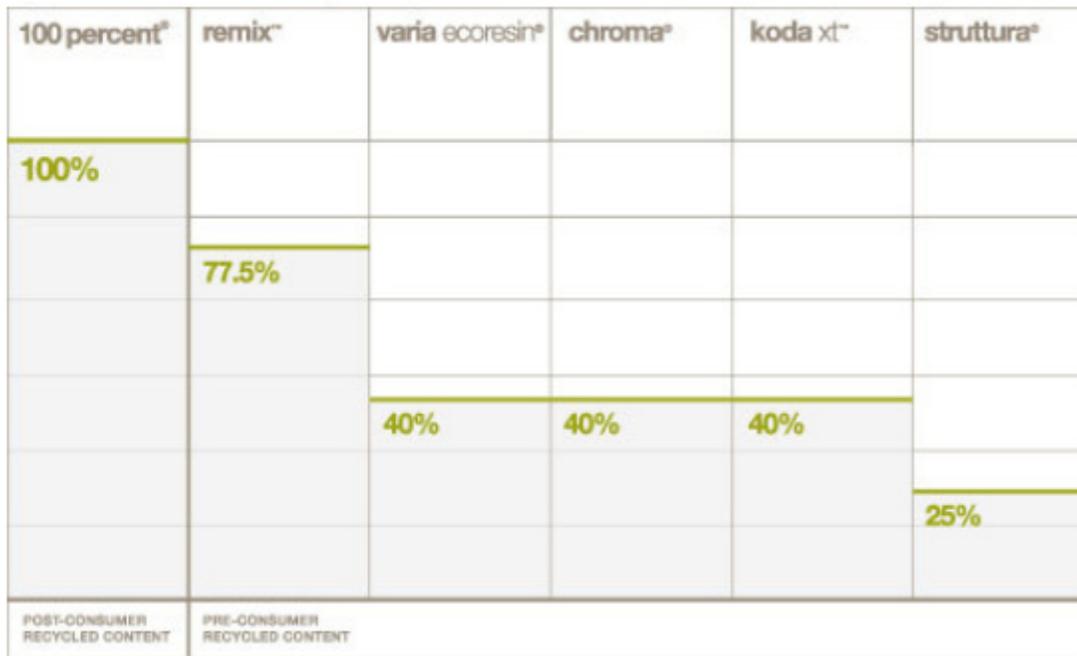
Ruba Design recycled car tyres

From a melbourne based company. Primarily deal with recycled car tyre rubber, that has been chopped and compressed together using only high pressure cold water. Tyres are a huge waste problem across the globe. Material has good grip and suppleness.

Bamboo a sustainable forestry alternative

Bamboo has similar properties to steel. regenerates in as little as 60 days and processes carbon dioxide and nitrogen at an astounding rate. feiz design, amsterdam, system 24 employs treated bamboo to great effect.

materials and processes



3form[®]
TRANSLUCENT MATERIALS



Braskem

3form
eco resins

- Sustainable building materials
- Wall/Panel substitute
- %100 recyclable
- Products in range use up to %100 recycled material in its manufacture
- LEED certified
- INFINITE range of textures, colours and graphic images
- Materials include
 - Non toxic, recyclable acrylic
 - Recycles HDPE
 - Sustainable Resin
- Material buy back scheme

Braskem
Bio Plastics

- Braskem are a world leader in bio plastics.
- Derived from the sugarcane
- Recyclable PE and PP
- Not all of their plastics are bio degradable
- One tonne of PE captures 2.5 tonnes of CO₂ and prevents 3.50 tonnes of petrochemical emissions.



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AC 4

Design: Antonio Citterio

MATERIALS

Aluminium is light and durable. Die-cast aluminium components by Vitra are principally made out of remelted alloys which are largely recycled material. When remelting recycled aluminium there is an energy saving of 94% compared to the production of primary aluminium. Aluminium components are 100% recyclable.

Steel is a stable compound of iron and carbon with various added alloys. As the technical properties such as strength and elasticity can be adjusted according to the steel grade, the material can be used flexibly in many different forms. At the end of the product life cycle, steel components can be melted down and completely recycled.

Zinc can be cast very well with the addition of alloying elements. Zinc can be recycled with little energy use.

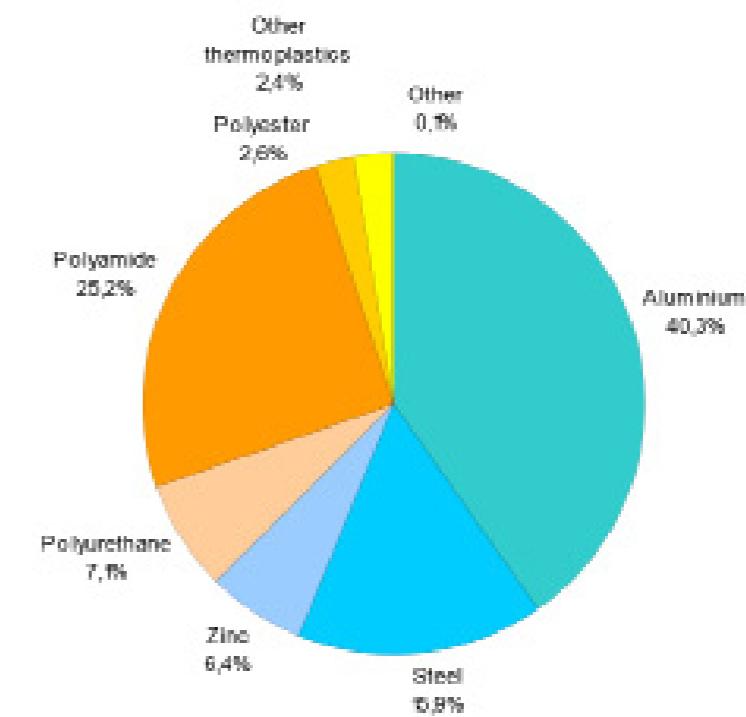
Polyurethane – Vitra uses this material primarily as permanently elastic soft foam in the production of covers. CFCs have not been used to expand polyurethane upholstery since as early as 1989. Polyurethane foams are mostly recycled thermally to generate energy or as a composite.

Polyamide is a very strong thermoplastic synthetic material. With the addition of a small amount of new material, polyamide can be 100% recycled. In order to facilitate single-variety separation and recycling, all plastic components that are large enough are labelled according to ISO 11469:2000.

Polyester is used first and foremost for cover fabrics and non-woven fabrics at Vitra. All cover fabrics undergo strict quality control tests and satisfy the ecological criteria of the German Consumer Goods Ordinance. Polyester is a thermoplastic and can be remelted. However, cover fabrics are generally used thermally or as a material.

Other thermoplastics are used for special applications. Vitra principally prefers thermoplastic to duroplastic synthetics, as with the addition of a small amount of new material, they are 100% recyclable. In order to facilitate single-variety separation and recycling, all plastic components that are large enough are labelled according to ISO 11469:2000.

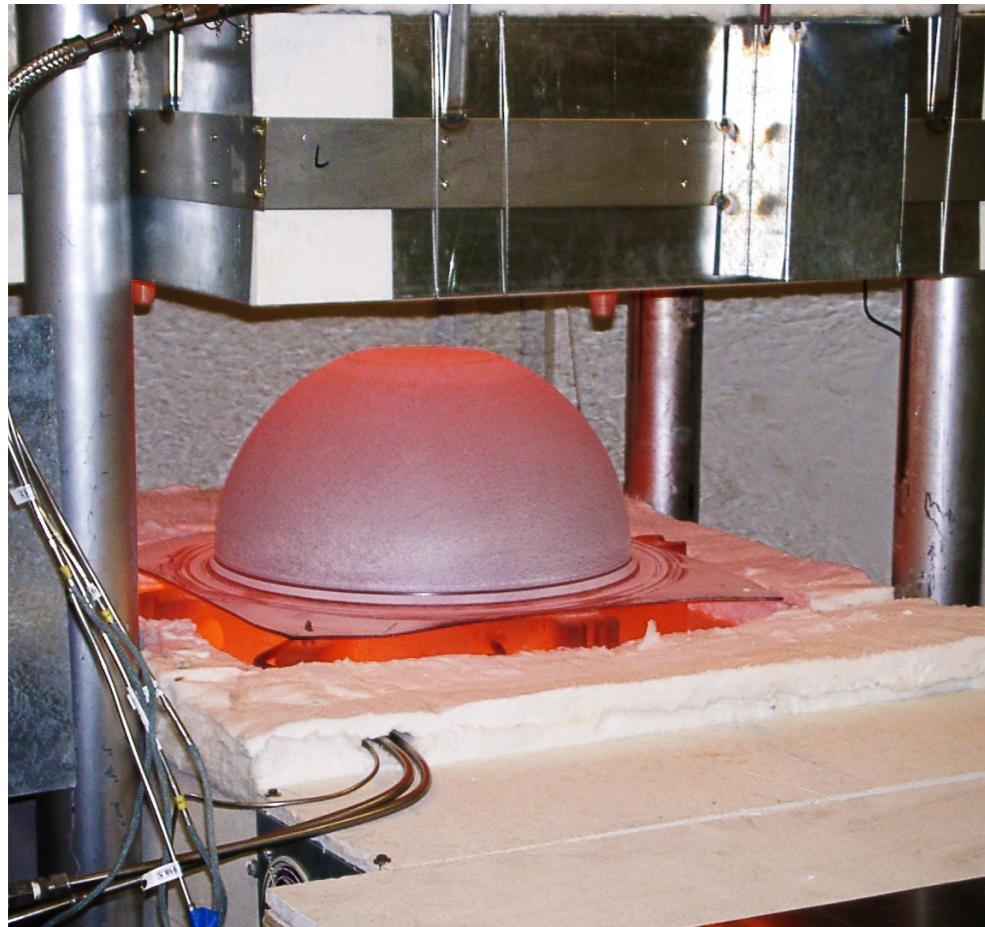
Leather is a natural material which is tear and scratch-resistant and at the same time is soft and pleasant to the touch. An independent institution checks at regular intervals whether the leather used by Vitra is within the legal maximum limits for harmful substances.



AC 4 with aluminium base, adjustable lumbar support, 3D-armrests (412 912 00)
Cover fabrics will be separated into synthetic materials and natural fibres,
depending on the material.



materials and processes



Superforming

Superforming is a hot forming process in which a sheet of Aluminium, Magnesium or Titanium are heated and then forced into a single surface tool to create a complex three dimensional shape from a single sheet.

- Low to moderate tooling cost
- Moderate to high unit costs
- Low to medium volume of production
- Very good surface finish
- Trimming and assembly operations increase overall production time

Laser Cutting

Laser cutting is used for industrial cutting of many materials including mild steel, aluminium, stainless steel, titanium, paper, wax, plastics, wood, and fabrics.

- No tooling costs
- Medium to high unit cost
- High quality finish
- Rapid production cycle time

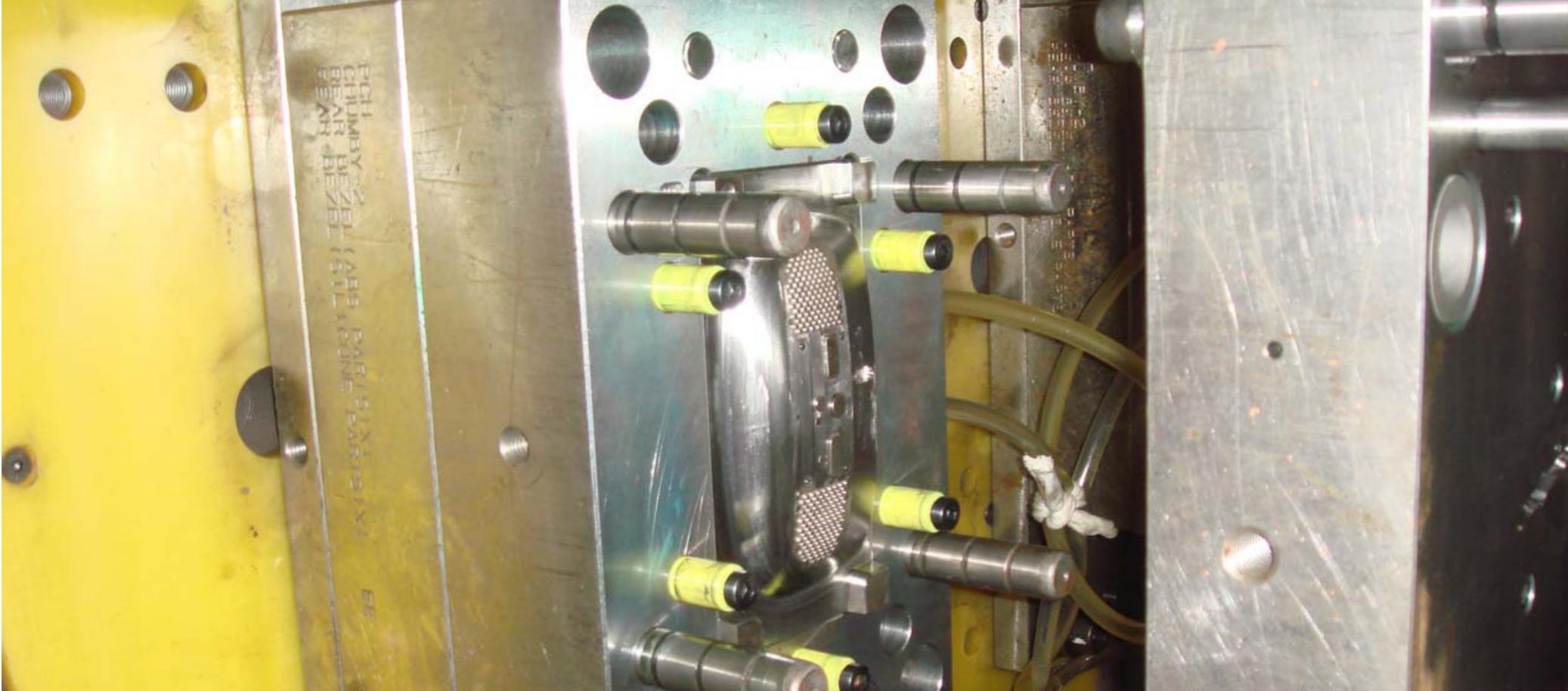
Tube Bending

The process of tube bending involves using mechanical force to push stock material tubing against a die, forcing the tube to conform to the shape of the die. Often, stock tubing is held firmly in place while the end is rotated and rolled around the die.

- No cost for standard tooling
- High cost for specialized tooling
- Moderate unit costs
- High quality can be achieved
- Rapid production cycle time
- Long machine setup time



materials and processes



Z

Upholstery

Upholstery is a highly skilled process where leather or fabric is used to cover foam padding (polyurethane). It is the process of bringing together the hard and soft components of a piece of furniture.

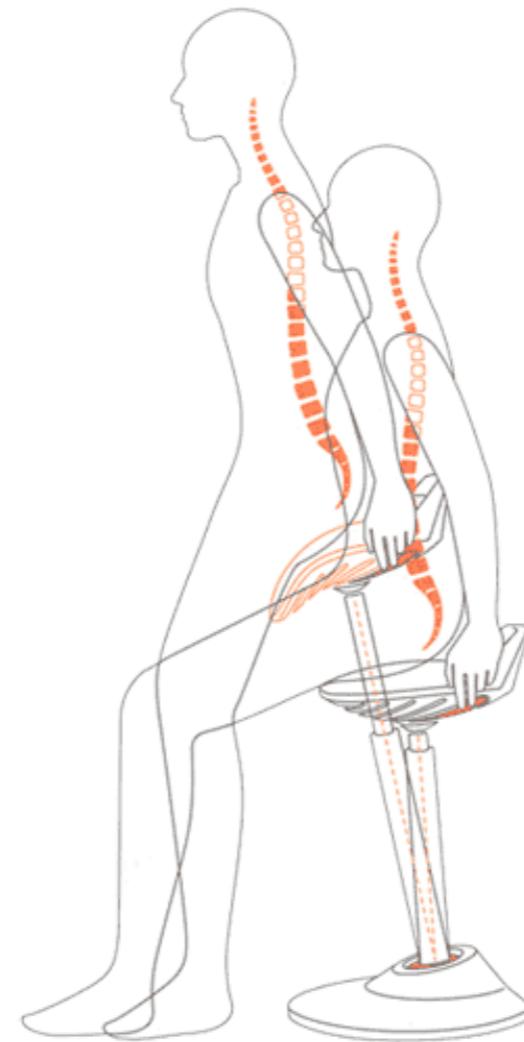
Injection Molding

Injection molding is a process for producing parts from both thermoplastic and thermosetting plastic materials. Material is fed into a heated barrel, mixed, and forced into a mold cavity where it cools and hardens to the configuration of the cavity.

- Very high tooling costs but depends on complexity and number of cavities
- Very low unit costs
- Very high surface finish
- Injection production cycle time is generally 30 – 60 seconds

sustainable furniture

muv•man®
VarioSitz



Muvman By Aeris

Winner of numerous design awards including the Red Dot design award in 2011, the Muvman takes an active approach to the office work station. The Muvman requires no lumbar support as the user is not hunched over their desk, which puts stress on the discs in the lumbar zone.

Active Sitting

Encouraging the user to change positions throughout the day., the height adjustability combined with the pitch and roll allows the user to work in any number of positions between stand and sit. By keeping the sitting angle above 90 degrees the user experiences improved circulation and productivity.



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Sustainable furniture



HÅG Capisco 8106:
43% of the materials used to produce the Capisco are recycled and 95% of all materials are recyclable.



Steelcase Think:
41% of the materials used to produce the Think are recycled and 99% of all materials are recyclable.



Haworth Zody:
51% of the materials used to produce the Zody are recycled and 98% of all materials are recyclable.



Vitra AC 4:
51% of the materials used to produce the AC 4 are recycled and 94% of all materials are recyclable.



sustainable furniture



Herman Miller - Setu



Steelcase - Cobi



Haworth - Very Conference



Vitra - .04



Vitra - Skape



Knoll - Generation



Knoll - Chadwick



Sustainable furniture



Pallet office:

Through the use of pallets, the designers have created an open, informal design that is also eco-friendly. A temporary furnishing for the new office location combined with the explicit wish to furnish the space with an authentic, recyclable material, gave creative director Marvin Pupping the idea to use Euro-pallets for this particular design.

The pallet structure is designed in such a way that besides being merely a workplace, the entire element invites you to stand, sit or lay down on the pallets. This open office concept was created to suit the creative advertising agency, with an informal atmosphere.



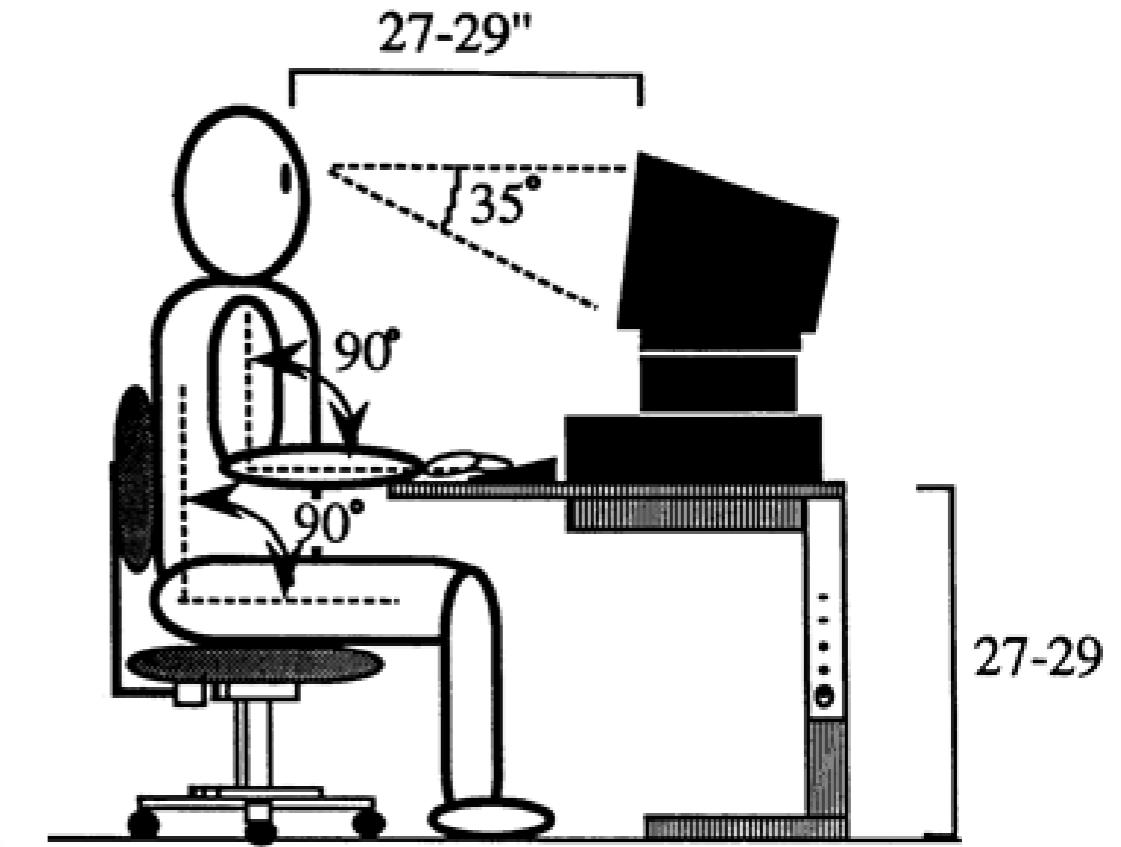
Vitra Joyn Desk System:

There are no predetermined horizontal divisions and you can make each work station as big or small as you wish. It also has the power and accessory rail along the center which gives each workstation as much utility as a cubical. Joyn is more than a piece of office furniture. Joyn is the office and also a management tool in a time of cultural change.

furniture ergonomics



Ergonomic chairs are chairs that have been specially designed to give the user maximum comfort and convenience. The term ergonomic is derived from the Greek words "ergos" meaning work, and "nomos," meaning natural laws of. Ergonomic chairs consider the physical and mental capabilities and limits of the worker as he or she interacts with it. Ergonomic chairs seek to fit the workplace to the worker, not the worker to the workplace.



Many people believe that it is relaxing to sit. But it is actually not so - sitting really exerts great stress on the back because it transfers the full weight of the upper body onto the buttocks and thighs. Sitting, especially for long periods of time, can also cause increase pressure on the intervertebral discs- the springy, shock absorbing parts of the spine. It's also hard on the lower extremities since gravity pools blood in the legs and feet and creates a sluggish return of blood to the heart. Ergonomic chairs relieve the user of all these symptoms.



Traditional chairs were not designed with body mechanics in mind. They therefore produce a lot of discomfort for the body leading to back pain, neck pain, eye strain, abdominal pain, leg pain and movement disorders. It is for these reasons that you need ergonomic chairs.

Ergonomic chairs are chairs that have been manufactured to provide maximum comfort and convenience for the user. They are manufactured after years of research into body movements, skeletal stress and postures that lead to pain and ache. The overall result is improved health and higher productivity.



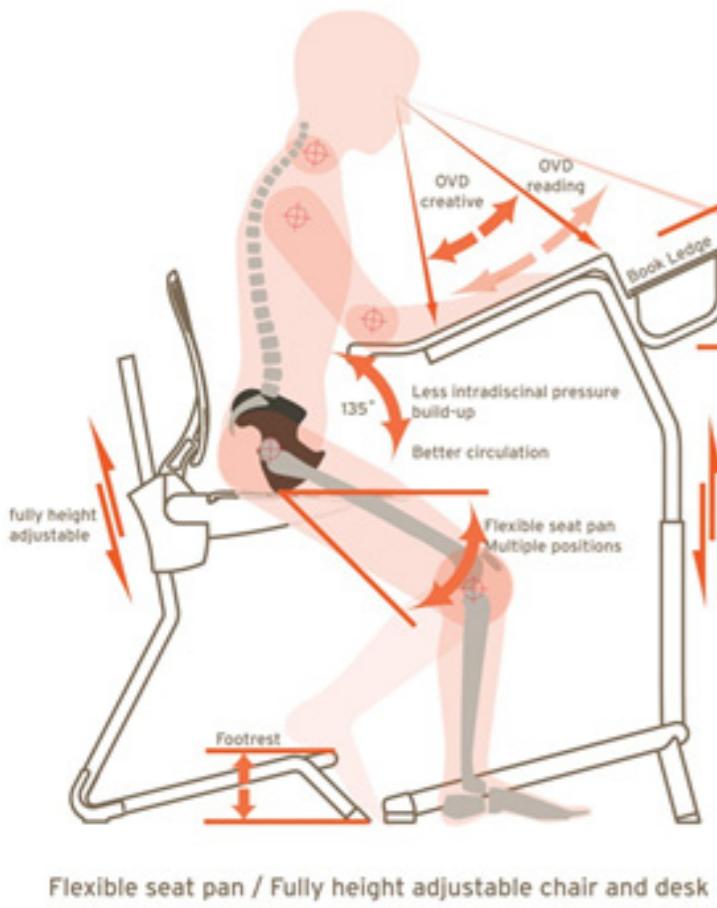
Ergonomic chairs have several advantages over the everyday traditional chair - they reduce back pain. Sitting in office chairs for prolonged periods of time can be a major cause of back pain.

Sitting in a static posture will even increase the stress in the back, neck, arms and legs, and add a great amount of pressure to the back muscles and spinal discs. Proper seating in a well constructed chair can help reduce fatigue and discomfort, increase blood flow, reduce the risk of injury, and increase productivity.

The productivity of individuals and the quality of their performance can be improved by examining the environment in which they operate and by improving the facilities and support they offer to the user's task. That is what ergonomics is about. Sitting should be enjoyed, it should not be endured. Ergonomic chairs make everyday sitting an enjoyable activity.



furniture ergonomics

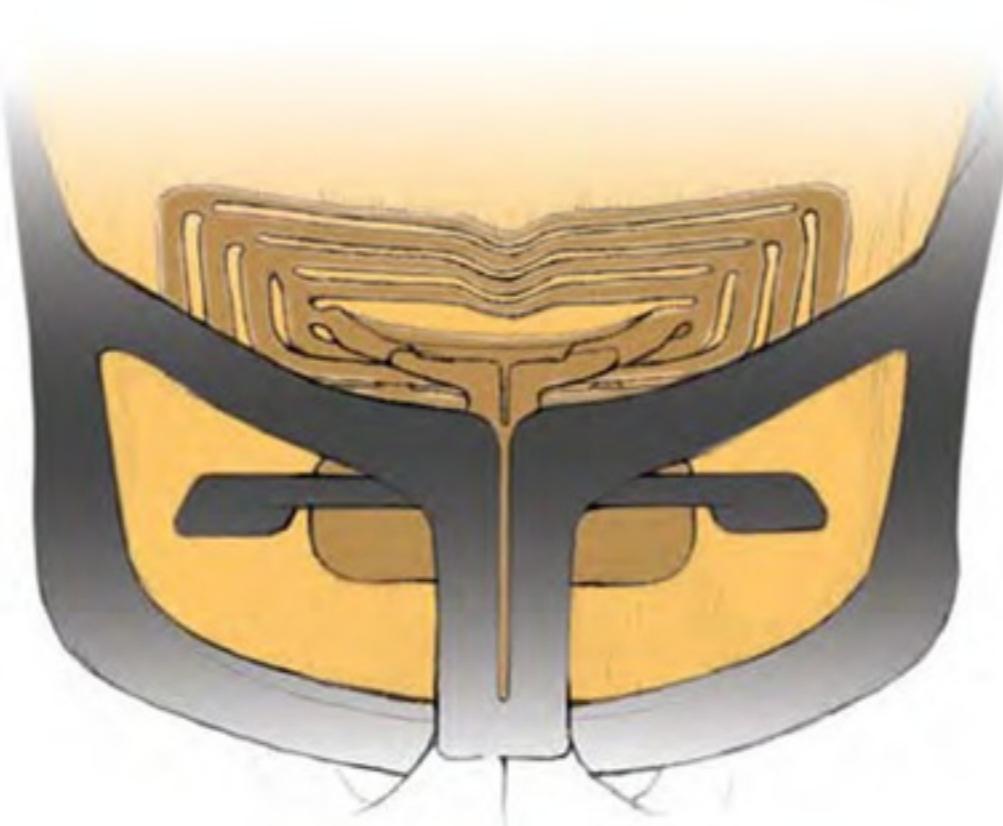


Blu Hen Ergonomic Chair
Nowadays The Modern offices use a chair that extreme look if you feel comfortable with the traditional chair, office chair is an alternative that is more ergonomic and healthy. Chairs with this beautiful design can eliminate your pain, improve your posture, and strengthen your core.



furniture ergonomics

- Seat height. Office chair seat height should be easily adjustable. A pneumatic adjustment lever is the easiest way to do this. A seat height that ranges from about 16 to 21 inches off the floor should work for most people. This allows the user to have his or her feet flat on the floor, with thighs horizontal and arms even with the height of the desk.
- Seat width and depth. The seat should have enough width and depth to support any user comfortably. Usually 17-20 inches wide is the standard. The depth (from front to back of the seat) needs to be enough so that the user can sit with his or her back against the backrest of the ergonomic office chair while leaving approximately 2 to 4 inches between the back of the knees and the seat of the chair. The forward or backward tilt of the seat should be adjustable.

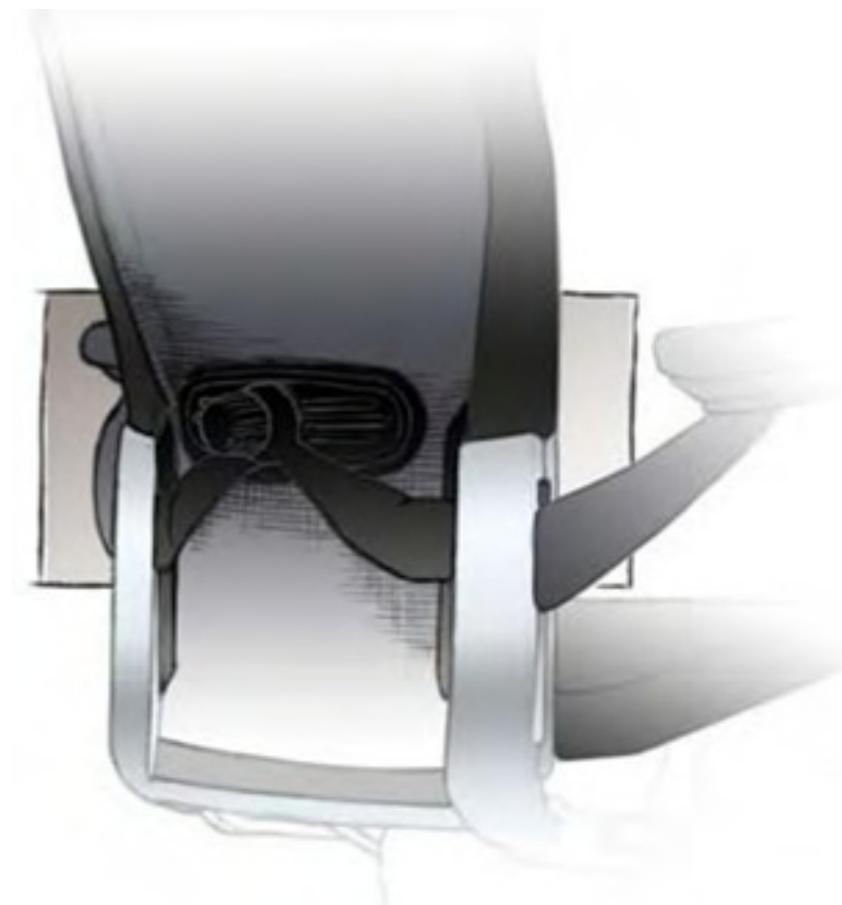


Assymetrical adjustable support

Asymmetric Adjustable Support —
This offers the highest available performance.
Comfort is greatly enhanced by allowing users to adjust the height by 4 inches as well as independently adjust support on either side of the spine.



Single axis adjustable support



Dual axis adjustable support

- Lumbar support. Lower back support in an ergonomic chair is very important. The lumbar spine has an inward curve, and sitting for long periods without support for this curve tends to lead to slouching (which flattens the natural curve) and strains the structures in the lower spine. An ergonomic chair should have a lumbar adjustment (both height and depth) so each user can get the proper fit to support the inward curve of the lower back.
- Backrest. The backrest of an ergonomic office chair should be 12 to 19 inches wide. If the backrest is separate from the seat, it should be adjustable in height and angle. It should be able to support the natural curve of the spine, again with special attention paid to proper support of the lumbar region. If the office chair has the seat and backrest together as one piece, the backrest should be adjustable in forward and back angles, with a locking mechanism to secure it from going too far backward once the user has determined the appropriate angle.
- Seat material. The material on the office chair seat and back should have enough padding to be comfortable to sit on for extended periods of time. Having a cloth fabric that breathes is



LINKS: Bottom left natural 's' curve pic:
<http://www.ergonomics-information.com/ergonomic-chairs-benefits.htm>
other chair pix:



Armrests:

The arms represent approximately 10.2% of our total body weight, which can result in considerable exertion in the muscles of the upper back, shoulders, and neck.¹⁰ Static exertions (exertion maintained for extended durations in a fixed posture) dramatically increase the risk of muscle fatigue and are often considered the first threshold to injury. Most people experience fatigue as soreness or discomfort in their muscles.



Correct



Incorrect

Supporting arm weight reduces the stress on the spine, however, in order to work they must fit. To minimize the potential for contact stress, armrests should be used intermittently while working. It is also preferable that the armrests are adequately padded.

Armrests that do not adjust and produce contact stress in the vulnerable areas of the elbow and forearm can increase the risks of injuries to these areas. To meet the size range of users, armrests need a considerable range of adjustability.



Front to Back



Pivot



Sideways



Office ergonomics



Joseph La Delfa

Dividers

Office dividers have been an integral part of the office furniture landscape for decades. They provide private quarters for each employee and a chance for some privacy and an opportunity to focus.

The open office environment will still require dividers, albeit in a different capacity. They will provide private booths for team hotdesking and video conferencing.

Growing Fresh Air

Kamal Meattle, business owner and activist, conducted a TED talk on 2009 regarding the benefits of clean air in the office.

-Three basic evergreen plants will enable fresh air to be 'grown' anywhere in the world.

- One to remove CO₂ during the day
- One to remove CO₂ during the night
- One to remove impurities in the air such as formaldehydes.

-Certain ratio of plants to people

- Increases blood oxygen levels
- Decreases eye irritation, headaches and respiratory problems such as asthma.
- Increases productivity
- Decreases office operating costs (less outside air needs to be mechanically pumped in)

Knoll is a leader in policies and practices designed to protect the biosphere, conserve natural resources and reduce waste. We are committed to helping safeguard all natural habitats and local communities. They strive to make the most efficient and responsible use of renewable resources, including water, soil and forests, and to conserve natural resources. They are pioneers in Clean Technology. Their commitment to high environmental standards is mandated by a comprehensive Environmental, Health & Safety Management Plan.

For more than 30 years, Knoll has been an industry leader in sustainable policies and practices and they focus on climate change, third party certification and environmentally sensitive materials, products and manufacturing processes. They pursue meaningful partnerships with third party organizations that provide independent verification of environmental standards that are transparent and universally accepted.

Our industry-leading clean technology limits and controls emissions in manufacturing. We manufacture Antenna Workspaces in our LEED® Gold, ISO-14001 certified facility in East Greenville, Penn., which is also an OSHA VPP Star site. 100% of electricity used at the site is offset by wind energy. The assembly process features robotic processes to assure manufacturing precision

Climate Change

We are continuously working on meaningful approaches to conserve energy and promote the use of renewable energy sources.

- We have a comprehensive Energy Management Program.
- We have a system for identifying manufacturing processes that save energy.
- We set legally binding targets for greenhouse gas emissions reductions through membership in the Chicago Climate Exchange (CCX).
- In February 2009, Knoll reached its CCX goal two years ahead of schedule, reducing its greenhouse gas emissions by 10.4% over a five year period(compared to the 1998-2001 baseline).

Environmentally-Friendly Materials, Products and Manufacturing Processes

We are committed to developing environmentally-friendly materials, products and manufacturing processes in our ongoing efforts to protect the biosphere, conserve natural resources and reduce waste.

- We follow comprehensive environmental design guidelines for all new products.
- We ensure that products and processes are environmentally sustainable via third-party certification.
- We research new technologies that are safe for the environment and reduce energy use.



'Generation' by Knoll offers a new standard of comfort and unrestrained movement, supporting the range of postures and work styles typical of today's workplace.

Created by Formway Design, Generation takes the idea of elastic design—where

a product rearranges itself in response to its user—to a new level. And Generation

is the first chair to be rated SMaRT© Sustainable Platinum, reflecting our Generation by Knoll Raises the Sustainable Design Standard

- Generation is the first chair in the industry to be rated SMaRT© Sustainable Platinum—this achievement reflects our commitment to develop a high

performance and highly sustainable chair.

- Generation is a materially efficient design, using less material than its key competitors. It weighs 36 lbs (plastic base) and 38 lbs (aluminum base) vs. some competitor chairs that weight 50+ lbs.

- Generation is made using 40% recycled content with the plastic base and 46% with the aluminum base.

- Generation is GREENGUARD Indoor Air Quality Certified® and GREENGUARD Children & SchoolsSM certified.

- Generation can contribute to achieving 4 LEED® points: Recycled Content (2 points), Low-Emitting Materials (1 point), and Innovation in Design (1 point) for its SMaRT© certification; plus an additional point depending on project location.

- An alternate version of Generation by Knoll using renewable source materials is in development.



knoll environmental case study



Life is light, intuitive, flexible and environmental. Its gentle curves, slim silhouette and ergonomic design bring comfort and effortless control to a new level. Durable, recyclable and produced with minimal raw materials, Life underscores the Knoll commitment to sustainability.

Sustainable Design Key Points

- Life is constructed using minimal materials.
- Life is constructed with raw materials that have a recycled content of 52% (plastic base version) to 62% (aluminum base version).
- Life is available with 20+ environmental upholstery fabrics from KnollTextiles, which are all GREENGUARD Indoor Air Quality Certified®.
- Life is GREENGUARD Indoor Air Quality Certified® and can contribute to LEED® certification.
- 70–80% of component parts are readily recyclable (aluminum base version).
- Life's cast, burnished aluminum frame requires no coating, minimizing materials and eliminating Volatile Organic Compounds (VOCs).
- SMaRT© Sustainable Gold certified.



Don Chadwick created a chair that embodies the best of his thinking with the finest principles of Knoll design. Its innovative design and engineering make it easy to assemble, simple to use, durable and stylish. Its efficient use of materials, parts and labor is also environmentally smart.

Sustainable Design Key Points

- Chadwick is constructed using minimal materials.
- Chadwick is constructed with raw materials that contain 13% post-consumer and 23% post-industrial recycled content.
- Chadwick's integrally colored plastic frame requires no coating, minimizing materials and eliminating Volatile Organic Compounds (VOCs).
- Chadwick is GREENGUARD Indoor Air Quality Certified®.
- Chadwick fabric is designed to be cleaned with low environmental impact cleaning fluids.
- 41.2% of component parts are readily recyclable.
- SMaRT© Sustainable Gold certified.



knoll environmental case study

The design and development of Antenna Workspaces followed Knoll Design for the Environment Guidelines, which specify design for durability; using minimum, non-toxic, recyclable and/or rapidly renewable materials; design for recycling; evaluating materials and sources for energy use and impacts throughout the stream of commerce; manufacturing with clean technology and protecting indoor air quality by minimizing off gasses in environments in which products are used.

Antenna creates work environments that respond to the needs of today's dynamic workplace and go beyond the traditional boundaries of open plan, private office and collaborative areas. Antenna serves those who view the entire office as a canvas to support a variety of work modes throughout the day.

In this work environment, there is a premium placed on striking a balance between individual and group activities and on being able to move freely and seamlessly between workstyles throughout the day.

-Focus: Antenna desks link in clusters and combine with screens and storage to define individual areas for heads down work. The same desk elements work in private offices.

- Share: Desk and table extensions add a collaborative element to individual spaces for quick sharing of information. Simple tables are the perfect fit in smaller rooms for one-on-one meetings or private phone calls.

-Team: Antenna Big Table works as a collaborative workspace in the open plan and as a tech-savvy meeting room table to support the work done by teams.



ergonomic outcomes

From our research, we aim to develop products that will suit the up and coming “open office” layout and the shift from individual work to group work. Individual workstations are being replaced with ‘hot desking’, meaning co-workers no longer have their own computer as all files are stored on server which are accessed via a portable device (tablet, notebook or smartphone). As corporations begin to place different departments on the same floor, employees are building their networks. As a result, multi disciplinary work teams are boosting creativity.

Furthermore, the products will aim to increase the employees blood oxygen levels which is positively related to productivity. We aim to achieve this primarily through keeping the employees active throughout the day, in addition to opening up the sitting angle (which improves bloodflow) and improving office air quality.

Complementary types of furniture that will be appropriate for this specific area are file modular cabinets & book shelves, adjustable desks, partitions and foot rests and adjustable workstations.

Joseph La Delfa



Context

The open office is the future of offices, for a number of financial, productivity and cultural reasons. furniture needs to be reconfigured quickly and in a number of different ways. employees do not have their own desk and the entire hierarchy of the business works in the same room.

The way in which employees will work is changing, with the keyword being collaboration. managers believe teamwork is the way forward, as it strengthens relationships and grows employees networks.

Keeping the worker moving throughout the day is key to avoiding health problems. the furniture will be designed to support a number of seating and standing positions, encouraging the worker to change their behavioural patterns and methods of personal interaction at work.

Functions

As people who work in offices will be sitting for long periods of time, it is vital that they are comfortable in their seat to avoid any lumbar stress and pains throughout the body which would distract workers.

In light of the recent Sydeny University Research, we will endeavour to design a furniture system that encourages the user to keep moving throughout the day in an effort to breakup sustain period of static sitting. This in turn will help prevent health problems.



As offices from the late 90s are slowly being refurbished, a number of different colours, textures and materials are replacing the dull colours that dominated the offices at the time.

The furniture really has to match the nature of the company, a sophisticated law firm would employ rich wood grains and cool steels. Where as an upstart technology company may want colour and contemporary shapes.

Designing for Knoll will force us to find a middle ground between these two aesthetics, elegant form and materials with restrained use of colour.

Manufacture Process and Materials

All processes and materials presented in the research are going to be considered for use in our furniture system, because they either are renewable, avoid toxic byproducts or use relatively small amounts of energy to produce. Naturally these materials will be used in order to take advantage of their strongest physical property, i.e reconstituted tyres for grip/padding, bamboo for structural integrity and aesthetic texture and laser cutting for low tolerance components.



In accordance with GECA green standards, we will endeavour to abide by the following chapters:

- 3.6 ADHESIVES -Either completely avoid the use of all adhesives, or use adhesives that comply with the Environmental Choice Australia eco label.
- 4.13 MDF & PLYWOOD - Avoid MDF and Plywood containing formaldehydes.
- 6.1 REPLACEMENT PARTS -replacement parts - ensure availability to increase the life of the product.
- 6.2 DESIGN FOR DISASSEMBLY - Design for disassembly, so when the product is to be junked, it can broken down into separate parts to be recycled.
- 6.3 RECYCLABILITY - an effort to decrease land fill.
- 6.4 COATINGS - products must not be impregnated, labelled painted or coated in a way that would inhibit recycling. Avoid coatings and sprayed finishes to minimize materials and eliminate VOCs
- 6.7 PRODUCT INFORMATION - instructions for use and maintenance that can help improve products lifetime.



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